

**Talking Points  
Women's Equality Day Observance  
August 26, 1994**

- We celebrate passage of the 19th Amendment today. Of course, it was a high point of early 20th century American history. It benefited our mothers, sisters, daughters and even our grandmothers. It really is hard to conceive of a society that denied women such a fundamental right as the right to vote. That sort of thing takes place in other countries.
- Unfortunately, the right to vote didn't guarantee equality, especially for professional women, especially for women engineers and scientists. Back in the 20s and 30s, women were steered away from these "non-traditional" fields. They had to be really persistent to get opportunities.
- Before World War II, industry, government and most colleges almost never hired women for science and engineering positions. Even when they did, the jobs were the lowest-paying and least important. Women were consigned to basement laboratories and attic offices.
- Even worse, job security for those women often depended on the largesse of a husband or male colleague. Author Sharon Bertsch McGrayne writes that at universities, "A woman had a permanent position only as long as her personal relationship with the man continued. In case of divorce or disaffection, the woman could be fired."

- Then World War II opened new vistas. There were many more opportunities for women scientists and engineers, and they took full advantage of them. Yet when the space age dawned in the post-war years, it was a man's world.

- One example of the prevailing philosophy: In a 1953 Collier's magazine article, Wernher von Braun and his colleagues reasoned that women would make good radio and radar operators aboard spaceships. After all, they said, women had already "proved they could perform monotonous tasks without undue loss of efficiency."

- ~~NASA didn't do much better early in its history.~~ Even at the height of Apollo, we had very few women engineers and scientists. Mission Control in Houston—it was called the *Manned* Spacecraft Center, of course—was all-male.

- Some women engineers played key roles, but they were essentially invisible. They received little or no public acknowledgment for their efforts. They had to be satisfied within themselves.

- One of our senior NASA officials recalls that her male colleagues during the Apollo era respected her engineering expertise. But when it came to being included in major meetings, she wasn't. When there was a briefing on her work to senior NASA officials, her male superiors got the nod to do it.

- How are we doing today? Some of the numbers look better. We now have 40 women in the Senior Executive Service at NASA, 8 percent of total SES. That's up from 6.3 percent earlier this year and 5.2

percent 2 years ago. We have 17 active women astronauts, including the first female shuttle pilot, Eileen Collins.

- While we pat ourselves on the back for those achievements, other figures are very troubling, and we're committed to doing something about them:

- Women make up only 15.3 percent of NASA's science and engineering workforce.

- Only 15.7 percent of the employees who report directly to me or to the NASA Center Directors are women.

- Several of our major technical codes at Headquarters have no women at the level of Division Director or higher.

- Too often, few women show up in senior positions when there's a reorganization at Headquarters or at the Centers. The reason given: "Well, the women candidates just aren't 'ready' yet."

- What if the same mindset had been applied to youthful male engineers and managers at Mission Control during the Apollo program? What if they hadn't had opportunities to be "ready?"

- Chris Kraft, in his mid-40s, might not have been there to run flight operations with a firm hand.

- 35-year-old Gene Kranz probably wouldn't have been there to successfully direct Apollo 11 as lead flight controller.

- And almost certainly Steve Bales, the 26-year-old guidance officer, wouldn't have been there to save the first lunar landing by giving Armstrong and Aldrin a "GO" despite computer alarms.

- outstanding*
- I have charged each Center Director to diversify their staffs. They will make sure that women, minorities and people with disabilities are selected for positions at all levels. NASA has to look like America, and inspire all Americans. *The only requirement is world class capability to meet the future job reqts.*
  - We've incorporated that goal into NASA's Strategic Plan. It articulates our commitment to institutionalizing equal opportunity and diversity. We won't stray from that goal. I challenge everyone here to help us realize our vision.
  - I'm sure today's panel members will inspire you with their stories. They are all highly successful women in different fields who have pursued—and achieved—excellence.

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- At the height of Apollo, women engineers and scientists played key roles—but they were essentially invisible. They received little or no public acknowledgement for their efforts. They had to be satisfied within themselves.
- One of our senior NASA officials recalls that her male colleagues during the Apollo era respected her engineering expertise. But when it came to being included in major meetings or making presentations, her male superiors got the nod to do it.
- How are we doing today? The numbers look better:
- There are still problems. Too often, women show up in disappointly small numbers

**Women's Equality Day Observance**  
**NASA Headquarters**  
**8/26/94**

Today we're celebrating the passage of the 19th Amendment. This, of course, was a high point in early 20th century American history. It benefited our mothers, sisters, daughters, and grandmothers. It really is hard to conceive of a society that denied women such fundamental rights as the right to vote. That is the sort of thing that takes place in other countries but not America. It was just a short time ago that it did.

Unfortunately the right to vote didn't guarantee equality, especially for professional women and most especially for women engineers and scientists. Back in the 20s and 30s women were steered away from these non-traditional fields. They had to be really persistent to get opportunities. Before World War II, industry, government and most colleges almost never hired women for science and engineering positions. Even when they did the jobs were the lowest paid and the least important. Women were confined to basement laboratories and attic offices.

Even the word job security for those women often depended on the largesse of a husband or a male colleague. Author Sharon Bertsch McGrayne writes that at universities, women had a permanent position only as long as the personal relationship with the man lasted. In the case of divorce or dissatisfaction, the woman could be fired.

Then World War II opened new vistas. There were many more opportunities for women scientists and engineers and they took advantage of that. Yet when the space age dawned in the post-war years, it still was a man's world. Even at the height of Apollo we had very few women engineers and scientists. Mission Control in Houston, was called the "Manned" Spacecraft Center. Of course, it was all male.

We still have this problem today. Women are still calling the human spaceflight program, "manned." I'd like each of you to take a vow today to wash out your mouth with a bar of soap if you ever say that again. It is unacceptable. We have 17 female astronauts, and unless you start—I correct people all the time. I even correct congressmen and senators because it is not a "manned" spacecraft program. It sets the wrong attitude, it sets the wrong environment.

Some women engineers played key roles, but they were essentially invisible during Apollo. They received little or no public acknowledgments for their efforts and they had to be satisfied within themselves. I just talked to one of the senior women engineers within NASA scientists, and she said that she felt

she was able to make a contribution and people said it was recognized that she made a contribution. But when it came time to make presentations, to participate in meetings, to participate in decisions, she was completely excluded. This is a situation that cannot exist.

And it still exists today to some extent. You cannot accept it. You are not dependent for your future on the people you work with or the people you work for. They have to accept you as a human being first. They have to understand you have aspirations and goals. You cannot be excluded by the "old boys network," and it is up to you to take the action to insure that it doesn't happen.

Now this is the past and this is part of the present. Let's take a little report card and see how we're doing today. Some of the numbers look better. We now have 40 women Senior Executive Service personnel at NASA - 8% of the SES, that's up from 6.3% just earlier this year, 5.2%, 2 years ago. We have 17 active women astronauts including the first female shuttle pilot, Eileen Collins, and you're going to hear a lot about her when the mission comes up.

While we pat ourselves on the back for those achievements, other figures are very, very troubling to me, and we're committed to continue to do something about it with your help. Women make up only 15.3% of NASA's science and engineer work force, because most young girls are told, science and engineering is not a field for you. So we have got to build a pipeline and each person in this room has to take it upon themselves to spread the word. Take time to go to schools. You're role models; you need to talk to the young women so that they know if they try they can make it and it won't happen as effectively through me as it is through you.

Only 15.7% of the employees who report directly to me, including NASA Center Directors, are women. This is unacceptable. Better than before, but it is absolutely unacceptable. And I've talked to the Center Directors about this and as positions open up, the direct reports to me, I intend to take further action.

Several of our major technical codes at Headquarters, let alone at the field centers, have no women at the level of division director or higher. Again, this is unacceptable. Too often, few women show up in senior positions when there's a reorganization at Headquarters or at the Centers. You know what the reason is? "Well, the women candidates just aren't ready yet."

I did a little analysis. At the midst of the Apollo program, Chris Kraft was in his mid-forties when he ran the flight operations. Gene Kranz was 35 years old, when he directed Apollo 11 flight control. And Steve Bales at 26 years old is the guidance officer who guided the first lunar landing and gave Neil Armstrong and Buzz Aldrin the go despite the fuel. Twenty-six years old. I've heard that some women in their mid forties just aren't ready yet. This is unacceptable.

I have charged each Center Director to diversify their staffs, and I asked them to make sure that outstanding—and I underlined the word outstanding—women and minorities, and people with disabilities are selected to positions at all levels. NASA has to look like America and inspire all Americans. The only requirement is world-class capabilities to be future leaders. The key issue is, do they have the intellectual capacity and a demonstrated capability to do the job.

We've incorporated that goal into NASA Strategic Plan. It articulates our commitment to institutionalizing equal opportunity and diversity. We won't stray from that goal. I challenge all the people here and I've already challenged all my directors' force to help us realize this vision. And until we realize this vision, NASA will not be a firm agency. Thank you.